1: Pelzer S-5 (1940-1941) 1945 AL1 Southeast Asia AL1

Chapter III

THE SEDENTARY CULTIVATOR

241 Sedentary, or permanent, cultivation of land is much more vital to the economy of the countries of Southeastern Asia than is shifting cultivation. The majority of peasant cultivators obtain their livelihood by tilling the same piece of land year after year. The continuously utilized arable land, however, is not all cultivated in the same way throughout Southeastern Asia. We may distinguish three main categories of arable land: garden land, surrounding the houses and villages; wet land; and dry land. These three classes of land are devoted to different crops and vary so much from one another in size and reliability of yields, and therefore in value that in Java, for example, the social status of a man depends upon the type of land that he cultivates. There are districts in Java where only those peasants who own wet land, houses, and garden land have the full rights of a villager.

554 621

The Garden Plot

244 Garden culture on land surrounding peasant houses in Java is devoted to a large variety of crops, ranging from fruit trees to plants that are not required in large quantities but only to supplement the diet and add flavor to the daily rice meal. Ochse and Terra, who have made exhaustive studies of garden culture, are of the opinion that it is a remnant of "primitive grainless hoe culture," in which all the useful plants found in the forest were concentrated in plots near the dwellings. Originally, the number of plants grown in the garden was greater than it is today, for some plants have been taken out of this economy to be grown on a larger scale in fields. The origin of garden culture explains, according to Ochse and Terra, the truly amazing variety of plants that are found on garden land.[1] Sollewijn Gelpke, a leading expert on native agriculture in Java during the past century, remarked on the richness of the gardens:

> Whoever strolls around a compound and takes things in with a botanical eye will see before him a variety of plants of which the uninitiated can have no conception. . . . Such wealth of vegetation is still more impressive to him who approaches it from an economic point of view. He sees palms, bamboo, bananas, and other trees that resemble each other closely, bearing fruit and giving support to various climbing plants.[2]

244 137 Often one is able to distinguish three levels, or stories, in a garden. The ground story consists of low-growing plants, especially tuberous plants that tolerate shade, such as elephant yam (*Amorphophallus campanulatus* Bl.), white arrowroot (*Maranta arundinacea* L.), "purple arrowroot" (*Can-*

1 Ochse and Terra: "Het onderzoek," 1934. See also Terra: "De voeding der bevolking," 1932, pp. 552–593.

2 Sollewijn Gelpke: Naar aanleiding, 1901, p. 203.

1: Pelzer S-5 (1940-1941) 1945 AL1 Southeast Asia AL

●244
1 137

na edulis Ker), sweet potato (*Ipomoea batatas* Poir.), taro (*Colocasia esculenta* Schott), *Curcuma* species, Goa bean (*Psophocarpus tetragonolobus* DC.), bitter cucumber (*Momordica charantia* L.), snake gourd (*Trichosanthes anguina* L.), Lima bean (large) (*Phaseolus lunatus* L.), Goa potato (*Dioscorea aculeata* L.), wild yam (*Dioscorea hispida* Dennst.), and sweet yam (*Dioscorea alata* L.). The middle story contains taller-growing plants, such as cassava (*Manihot utilissima* Pohl), citrus varieties such as *Citrus nobilis* Lour. and *Citrus aurantifolia* Swingle, papaya (*Carica papaya* L.), banana (*Musa* species), rose apple (*Eugenia aquea* Burm.), and soursop (*Anona muricata* L.). The upper story is formed by tall fruit trees, such as coconut (*Cocos nucifera* L.), jackfruit (*Artocarpus integra* Merr.), sapodilla or chico (*Achras zapota* L.), pomelo (*Citrus maxima* Merr.), of which numerous forms, differing in size and color, are known in the Indies, *belinju* (*Gnetum gnemon* L.), mango (*Mangifera indica* L.), durian (*Durio zibethinus* Murr.), candlenut tree (*Aleurites moluccana* Willd.), tamarind (*Tamarindus indica* L.), *pete* (*Parkia speciosa* Hassk.), stinkbean tree (*Pithecellobium lobatum* Benth.), and *santol* (*Sandoricum koetjape* Merr.).

This list does not by any means include all the plants that appear in the gardens. The plants vary in number and type from region to region in accordance with differences in soil, climate (elevation), and the taste of the owners.

311
244
161
369

Estimates indicate that about 15 per cent of the cultivated land in Java and Madura is taken up by gardens. Unfortunately, there have been no detailed studies of garden culture outside of Java, although the products of the garden play an important role in the diet of all the peoples of Southeastern Asia. Terra, who compared garden culture in various districts of Java, found that the share of land allotted to gardens, together with the intensity of their cultivation, increases as the total amount of crop land per head decreases, down to the point where the average amount of crop land per head is only 0.15 hectare. Where the amount of land is even less than this the share of garden land decreases, although there is a tendency at first to increase the intensity of the garden culture. Close to the larger cities, the amount of crop land per person, together with the amount devoted to gardens and the intensity of the latter's cultivation, falls off to a minimum since the population here has supplementary sources of income.

With the development of a money economy appears a specialization that is directed toward the urban centers. There has always been some natural specialization inasmuch as some plants do not grow well everywhere. The coconut, for example, does best in the lowlands. But the new specialization depends not only upon such natural factors as soil and climate, but also upon economic factors such as marketing facilities and the development of communications. This specialization can be observed generally in Southeastern Asia.

146
244

Ochse and Terra found that in calories of food value the returns of the gardens proved to be slightly higher per hectare than those of the irri-

1: Pelzer S-5 (1940-1941) 1945 AL1 Southeast Asia AL1

gated fields. One of the great advantages of garden culture over field culture is that there is always something ready to harvest from the former and therefore something to sell when money for daily household needs becomes scarce. Another advantage is that the garden supplies the family with a great variety of side dishes rich in vitamins; the vegetable proteins of the garden produce are also of high value.

As to the possibilities of improving garden culture, these two authors state:

> It is very evident that an improvement of the compound horticulture is a very difficult problem through the highly varied and dense planting of these compounds as a result of which they come to resemble a very complicated symbiosis. But for all this it must be possible by systematic investigation to improve not only the quality but also the quantity of the production. It may be said that the compounds with their story or layer formation superficially considered will find no favour in the eyes of western agriculture, but they are an essential link in the native production apparatus.[3]

The alarming decline in the welfare of the people of Java in the face of a mounting population prompted Netherlands Indies officials to examine every possibility of improving the peasants' condition. This accounts for the studies of Ochse and Terra. Lacking detailed studies outside Java, we are obliged to depend upon scattered references of uneven value.

Credner states that in Thailand practically every house has a few trees on the lot, and the villages are often hidden by tree clusters. The greatest intensification of garden culture is found on the right bank of the Mae Nam Chao Phraya (the Menam) in Bangkok Noi, just opposite Bangkok. Here irrigation is employed in garden culture, a technique not usually found in Southeastern Asia. The gardens are surrounded by walls 1 meter high and are traversed by trenches 2 meters apart. The beds between the trenches are elevated. The trenches work both as drains and as irrigation ditches. Small sluices control the water. In the gardens there is a great variety of fruit trees and palms which climbers, such as *Piper betle* L., use as supports. In the trenches the peasants grow lotus and water chestnut (*Trapa natans* L.).[4] Zimmerman, in his survey of rural Thailand, points out that in most regions the peasants rely too much on one crop, rice, and he recommends in several instances improvements in the cultivation of the home lots so that families may have a better supply of fruits and, above all, of vegetables. In the Khlong Rangsit section he observed that "on account of the lack of homestead and village sites among the people there is no gardening and home production of food."[5] This observation may be applied to Southeastern Asia in general. Wherever the dominant form of land tenure is tenancy the flimsy shack of the tenant has no mixed fruit and vegetable garden around it, for his status is much too uncertain. A tenant

[3] Ochse and Terra: *op. cit.*, pp. 371–372.
[4] Credner: Siam, 1935, p. 246.
[5] Zimmerman: Siam, 1931, p. 307.

1: Pelzer S-5 (1940-1941) 1945 AL1 Southeast Asia AL1

244 427

who does not know where he will be the next year cannot be expected to plant fruit trees. Under these conditions the diet is reduced to the simplest foods and is usually deficient.

245 134

Zimmerman criticizes some of the characteristics of garden culture in the Thai part of the Malay Peninsula. The improvements that he recommends show that he has approached the gardens with a Western eye, looking for fruit trees "in rows at proper spaces, not scattered as is the case now." [6] He notices lack of tilling, an observation that could be duplicated in every country of Southeastern Asia. As a matter of fact, it is fortunate that the gardens—especially those that have many fruit trees and palms—are not clean-cultivated; otherwise erosion would have caused the same damage here that it has caused in the Westerners' rubber, tea, and coffee plantations—these were planted in rows and kept clean until the discovery was made that soil erosion is extremely severe under such conditions. Pendleton remarks:

> The average Occidental, accustomed as he is to clean cultivated orchards and vineyards in temperate zones, is inclined to keep a plantation in the tropics likewise cultivated. This is now quite generally recognized as a mistake. . . . Near Songkla [in southern Thailand] . . . are considerable plantings of fruit trees, planted as if they were forest trees. . . . Annually, before harvesting the fruit, the undergrowth is slashed and left on the ground, but there is no stirring of the soil or other cultivation. The results are excellent, and there is no soil deterioration, no catastrophic erosion, no expense for cultivation.[7]

245

There is little literature on the importance of garden culture among the Malays of British Malaya. According to Grist,

> fruit cultivation is of little more than local importance. The total area under fruit, other than pineapples, is estimated to be 63,000 acres. . . . This area does not take into account the numerous small compounds surrounding Malay homesteads, in which a few fruit trees are planted and which, in the aggregate, must amount to a very considerable area. Although certain fruits acquire a reputation in particular localities, the distribution of the fruits is scattered throughout the country. For instance, North Johore is noted for its durians, Malacca for dukus [*Lansium domesticum* Jack], Penang for rambutans, but in point of fact, equally good quality fruit of these kinds can be found in other areas.[8]

Malaya lacks the detailed information about gardens and their economic importance that is found in Java, for instance, where the garden area of each village is known, because in Malaya there is no population pressure and therefore no need for exact field studies and careful inventories of the source of food supply.

The Philippines are like Malaya in respect to garden culture. Some districts around Manila Bay have specialized in such fruits as mangoes,

---

[6] *Ibid.*, p. 163.
[7] Pendleton: "Some Interrelations," 1939, p. 50.
[8] Grist: An Outline of Malayan Agriculture, 1936, p. 228.